product name and its formulation) reported as shortages between 2015 and 2018.

Results The classification work identified two major categories of causes of drug shortages: causes related to the manufacturing process and those related to the drug distribution system. Causes related to manufacturing dysfunction were divided into five subclasses: 83 types of causes allowed the building of a systematic classification related to the manufacturing circuit. Material issues use ranked first (31%), followed by manufacturing issues, pharmaceutical market and regulatory issues, and inventory and stockage practice (30.4%, 23.5% and 9.89%, respectively). The number of reported pharmaceutical market causes of shortages showed a 3.5-fold increase between 2015 and 2018. In 78% of reported shortages, only one dysfunction caused the shortage. The number of multiple causes of shortages increased by 2.4 during the study period.

Conclusion and relevance To our knowledge, there are no studies with the same results. Drug shortages are increasingly reported in this country. Precise knowledge of the causes of the shortages can identify short term solutions to reduce their severity and long term solutions to reduce their numbers.

REFERENCES AND/OR ACKNOWLEDGEMENTS

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No conflict of interest.

1ISG-013 SMARTPHONE APPLICATIONS FOR PATIENTS DIAGNOSED WITH GENITOURINARY TUMOURS: ANALYSIS OF THE QUALITY USING THE MOBILE APPLICATION RATING SCALE

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Background and importance The large number of health apps for genitourinary cancers means a transparent and objective evaluation by app experts and healthcare professionals is needed.

Aim and objectives To analyse the quality of apps for patients diagnosed with genitourinary cancers, using the mobile application rating scale (MARS) methodology.

Material and methods This was an observational, cross sectional descriptive study. Inclusion criteria were apps available in the 'App Store' and the 'Play Store' for genitourinary cancers intended for patients and/or careers. Inclusion period was February 2019.

Platform (Android/iOS), cost, date of the last update, type of cancer, purpose and participation of health professionals on their development were recorded. A multivariate analysis was conducted.

The quality of the apps was assessed using MARS. This evaluation includes 23 evaluation criteria clustered in five domains (engagement, functionality, aesthetics, information and subjective quality). Each evaluation criterion is rated from 1 to 5 according to its conformity (1=inadequate, 2=poor, 3=acceptable, 4=good, 5=excellent). The total mean score of MARS, which describes the overall quality of the app, was obtained by the mean score of every domain.

Results Forty-six apps were downloaded (31 Android, 6 iOS, 9 both platforms); 89.1% were free and 60.9% were updated in the last year. The most frequent cancers in the apps were prostate (30.4%), cervical (17.4%), testicular (13.0%) and ovarian (13.0%). The main purpose was informative (63.1%), preventive (23.9%) and diagnostic (13.0%). Seven apps (15.2%) were developed by healthcare organisations.

The average MARS score was 2.98 (SD=0.77), with a maximum of 4.63 and a minimum of 1.95. Functionality scores were similar among all the apps. The greatest differences were found in engagement and aesthetics criteria which showed acceptable scores only in a third of the apps. Multivariate analysis showed statistically significant differences according to the platform and participation of health professionals in the development ($p<0.001$ and $p=0.01$, respectively).

Conclusion and relevance Very few apps for patients with genitourinary cancers were focused on how to handle the disease after diagnosis, correct administration of treatment or adequate monitoring of symptoms. The participation of health professionals in the development was low but was correlated with quality. MARS is a helpful methodology to analyse app quality and make better recommendations to patients.

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1ISG-014 COST EFFECTIVENESS ANALYSIS OF PATIENT SELF-ADMINISTRATION OF MEDICATION DURING HOSPITALISATION IN A CARDIOLOGY UNIT

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Background and importance Patient involvement is increasingly becoming part of clinical practice, including self-administration of medication (SAM) during hospitalisation. Previously, we have investigated the effectiveness of SAM in a randomised controlled trial (RCT). The proportion of ward level dispensing errors was considered the best way to explore safety difference between workflows. We saw that SAM was effective, and also user friendly. However, due to the scarcity of healthcare resources, a health economic evaluation is important when choosing the best, safest and most economically advantageous way to manage medication in hospital.

Aim and objectives To evaluate the cost effectiveness of SAM during hospitalisation compared with nurse-led medication dispensing and administration.

Material and methods A cost analysis (microcosting level) was performed from a hospital perspective with a short term incremental costing approach, including the costs of medication, materials and nursing time spent on dispensing, administration, SAM start and discharge preparation.

The RCT was performed in a cardiology unit and included patients ≥ 18 years that were capable of SAM. In the intervention group, patients were instructed about the medication and